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2 Claims:

3 The use of a composition of PKB, its analogues,
4 isoforms, inhibitors, activators and/or the functional
5 equivalents thereof, to regulate glycogen metabolism
6 and/or protein synthesis.

7 The use of a composition of PKB, its analogues,
8 isoforms, inhibitors, activators and/or the functional
9 equivalents thereof, for the manufacture of a
10 medicament to regulate glycogen metabolism and/or
11 protein synthesis.

12 The use as claimed in claim 1, to
13 combat disease states where glycogen metabolism and/or
14 protein synthesis exhibits abnormality.

15 The use as claimed in claim 1, to combat
16 diabetes.

17 The use as claimed in any preceding claim, to
18 combat cancer.

19 The use as claimed in claim 5, wherein the cancer
20 is breast, pancreatic or ovarian cancer.

21 The use as claimed in claim 1, wherein
22 the PKB is PKB α , β or γ , an analogue, isoform,
23 inhibitor, activator or a functional equivalent
24 thereof.

25 The use as claimed in claim 1, wherein
26 the PKB, its analogue, isoform, or functional
27 equivalent is modified at one or both of amino acids
28 308 and 473 by phosphorylation and/or mutation.

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1 9 A composition of PKB, its analogues, isoforms,
2 inhibitors, activators and/or the functional
3 equivalents thereof.

4 10 A peptide having or including the amino acid
5 sequence Arg-Xaa-Arg-Yaa-Zaa-Ser/Thr-Hyd, where Xaa is
6 any amino acid, Yaa and Zaa are any amino acid, and Hyd
7 is a large hydrophobic residue, or a functional
8 equivalent of such a peptide.

10 11 A peptide as claimed in claim 10, wherein Hyd is
11 Phe or Leu, or a functional equivalent thereof.

13 12 A peptide as claimed in claim 10,
14 wherein Yaa or Zaa or both are an amino acid other than
15 glycine.

17 13 A peptide as claimed in claim 10, having the amino
18 acid sequence GRPRTSSFAEG, or a functional equivalent
19 thereof.

21 14 A method of identifying agents able to influence
22 the activity of GSK3, said method comprising:
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24 a. exposing a test substance to a substrate of GSK3;
25 and
26 b. detecting whether said substrate has been
27 phosphorylated.

29 15 A method of identifying agents which influence the
30 activity of PKB, comprising:
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32 a. exposing a test substance to a sample containing
33 PKB, to form a mixture;
34 b. exposing said mixture to a peptide as claimed in
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36 claim 10; and

1 c. detecting whether (and, optionally, to what
2 extent) said peptide has been phosphorylated.

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4 16 A method as claimed in claim 14, wherein the
5 extent of phosphorylation of the peptide is determined.

6 17 A method as claimed in claim 15, wherein the
7 phosphorylation state(s) of one or both of amino acids
8 308 and 473 on PKB is determined.

I0 18 A method as claimed in claim 14,
ii wherein the test substance is an analogue, isoform~
12 inhibitor, or activator of PKB.

14 19 A method as claimed in claim 14,
15 wherein steps a or b (or both) are carried out in the
16 presence of divalent cations and ATP.

18 20 A method of treatment of the human or non-human
19 animal body, said method comprising administering PKB,
20 its analogues, inhibitors, stimulators or functional
21 equivalents thereof to said body.

23 21 A method as claimed in claim 20, to combat disease
24 states where glycogen metabolism and/or protein
25 synthesis exhibits abnormality.

27 22 A method as claimed in claim 20, to combat
28 diabetes.

30 23 A method as claimed in claim 20, to combat
31 cancer.

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34 24. A method as claimed in claim 23, wherein the
35 cancer is breast, pancreatic or ovarian cancer.

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1 25 A method as claimed in claims 20
2 wherein the PKB is $\text{PKB}\alpha$, β or γ , an analogue, isoform,
3 inhibitor, activator or a functional equivalent
4 thereof.

5 26 An agent capable of influencing the activity of
6 PKB, its isoforms, analogues and/or functional
7 equivalents, by modifying amino acids 308 and/or 473 by
8 phosphorylation or mutation.

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 27 A method of determining the ability of a substance
to affect the activity or activation of PKB, the method
comprising exposing the substance to PKB and
phosphatidyl inositol polyphosphate and determining the
interaction between PKB and the phosphatidyl inositol
polyphosphate.

28 29 30 31 32 33 34 35 36 28 A method of determining the ability of a substance
to combat diabetes, cancer, or any disorder which
involves irregularity of protein synthesis or glycogen
metabolism, the method comprising exposing the
substance to PKB and phosphatidyl inositol
polyphosphate and determining the interaction between
PKB and the phosphatidyl inositol polyphosphate.

30 31 32 33 34 35 36 29 A method as claimed in claim 27,
wherein the interaction between PKB and the
phosphatidyl inositol polyphosphate is measured by
assessing the phosphorylation state of PKB.

30 31 32 33 34 35 36 30 A method as claimed in claim 29, wherein the
phosphorylation state of PKB at T308 and/or S473 is
assessed.

31 32 33 34 35 36 31 A method of identifying activators or inhibitors
of GSK3 comprising exposing the substance to be tested

1 to GSK3 and determining the state of activation of
2 GSK3.

3 32 A method as claimed in claim 31 wherein the state
4 of activation of GSK3 is determined by assessing its
5 phosphorylation.

6 33 A method of determining the suitability of a test
7 substance for use in combatting diabetes, cancer, or
8 any disorder which involves irregularity of protein
9 synthesis or glycogen metabolism, the method comprising
10 exposing the substance to be tested to GSK3 and
11 determining the state of activation of GSK3.

12 34 A method for screening for inhibitors or
13 activators of enzymes that catalyse the phosphorylation
14 of PKB, the method comprising exposing the substance to
15 be tested to
16 - one or more enzymes upstream of PKB;
17 - PKB; and (optionally)
18 - nucleoside triphosphate
19 and determining whether (and optionally to what extent)
20 the PKB has been phosphorylated on T308 and/or S473.
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